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Pipeline and Hazardous Materials Safety Administration (PHMSA)

Control Room Management (CRM) Citizens Advisory Committee on Pipeline Safety

November 19, 2012



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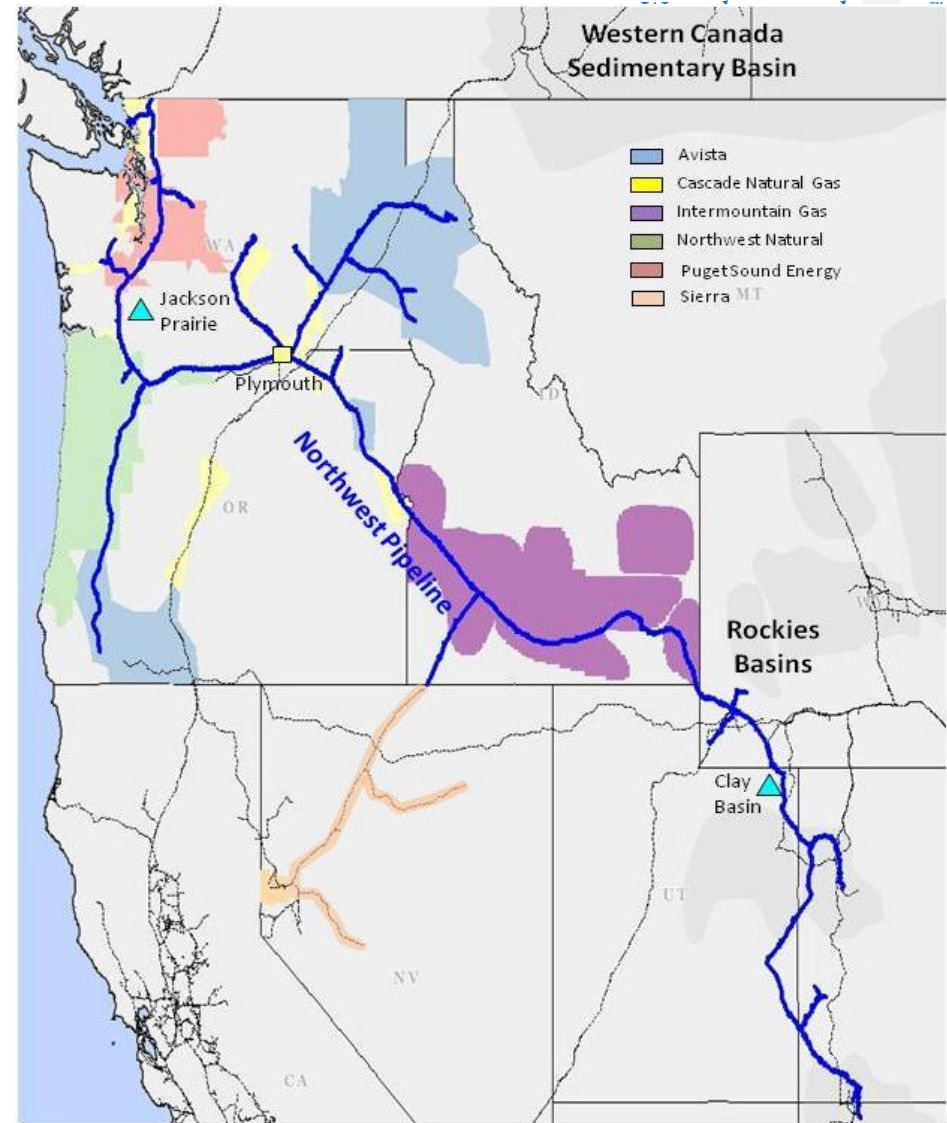
Presentation Objectives

- > Overview of Northwest Pipeline System
- > Elements of “new” control room management rule
- > Overview of Northwest’s Pipeline Control Room Plan

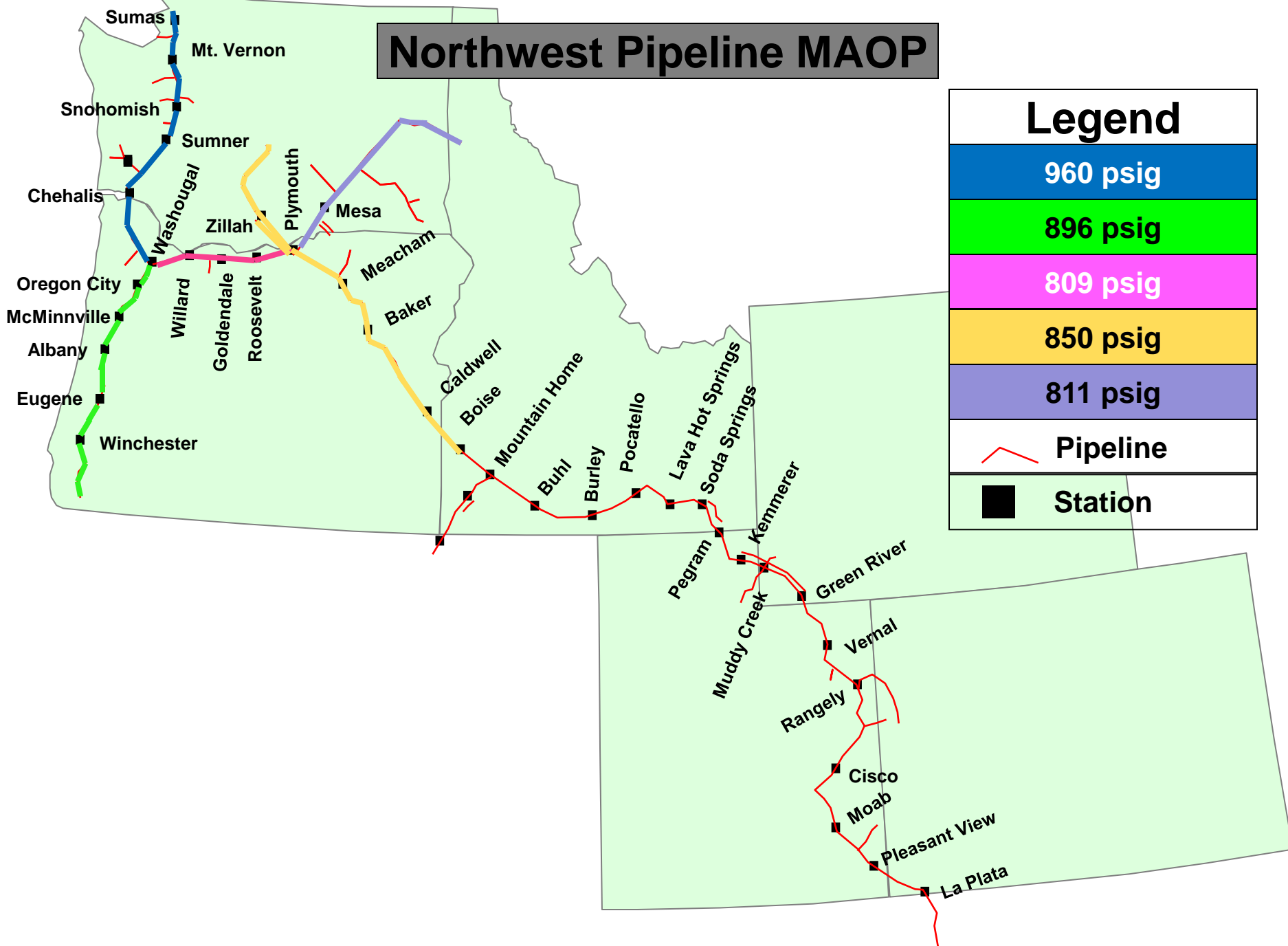
Northwest Pipeline System Overview



- > **55 years of continuous, reliable service**
 - Bi-directional Pipeline
 - 3,900-miles of pipeline
 - 3.7 Bcf/d peak design capacity
 - 13.0 Bcf storage capacity (NWP)
 - 2.4 – 3.2 Bcf Line pack
 - 41 Compressor Stations / 464,668 Horsepower
 - 385 active receipt/delivery meter stations
 - 112 Compressors (61 Turbines & 51 Recips)
- > **Prolific supply sources**
 - Northwest bi-directional system allows access to British Columbia, Alberta, Rocky Mountain, San Juan
- > **Storage Facilities**
 - Jackson Prairie (Total - 25 Bcf Capacity)
 - Plymouth LNG (Total - 2.4 Bcf Capacity)
 - Clay Basin (Total – 51.25 Bcf Capacity)



Northwest Pipeline MAOP



Content of CRM Final Rule 49CFR 192.631



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> Important elements for determining if rule applies:

- Alarm
- Controller
- Control Room
- Supervisory Control and Data Acquisition System

> Summary of the final rule:

- Roles and Responsibilities
- Provide adequate Information
- Fatigue Mitigation
- Alarm Management
- Change Management
- Operating Experience
- Training
- Compliance Validation
- Compliance and Deviations

> Define Controllers Roles & Responsibilities

- Normal, abnormal, and emergencies operations
- Authority to make decisions and take actions
- Method of recording shift-changes and hand over of responsibilities

> Provide adequate Information

- Conduct Point to Point verification
- Test and verify internal communication plan for manual operation of pipeline
- Test backup SCADA system

> Fatigue Mitigation

- Establish shift lengths & schedule rotations that provide controller to achieve 8 hours of continuous sleep
- Establish a maximum limit on controller hours of service
- Educate Controllers in fatigue mitigating strategies & how off-duty activities contribute to fatigue

> “Change Management”

- Establish communications between control room representatives, management, and field personnel when planning and implementing changes.
 - Document your plans and practices
- Require field personnel to contact control room during emergency conditions or when making field changes.

> “Operating Experience”

- Incorporate lessons learned from operating experience into procedures and training
- Review incidents that meet reporting requirements for contributions/deficiencies:
 - Controller fatigue
 - Field equipment
 - Operation of any safety device
 - Procedures
 - SCADA system configuration and performance
- Test backup SCADA system

> Training

- Establish and review annually
- Use of simulator or tabletop method for training controllers

> “NWP Alarm Management Plan”

- Review SCADA safety-related alarms to ensure accuracy
- Monthly identification
 - Alarms taken off-scan, inhibited, false
- Review alarm management plan annually



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Control Room Management Program

> NWP Gas Control Room Operations

- 25,114 - Total number SCADA Points
- 8,034 – Total number of SCADA Washington Points
 - Total number of Washington remote devices – 216
 - System total safety related = 2,517
 - Washington safety related = 765
- Remote Control Operations in Washington State
 - 13 Compressor Stations, 39 compressor units, 70 Meter Stations, 16 Gas Quality
 - Compressor Stations - Start & Stop capabilities
 - Adjust compressor speeds and/or flow control
 - Valve Operations - Open & Close capabilities
 - Monitor and Flow control
 - Gas Quality
 - Monitor



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Control Room Management Program

> NWP Gas Control Operations continued

> Examples of Safety-related Points

- High & Low Pressures
- High & Low Temperatures
- Hazard
 - Gas LEL, Smoke, Fire, H₂S
- Intrusion
- Rate of Change
- Emergency
 - ESD, SSD
- Gas Quality
 - H₂O, H₂S, Sulfur
- Level
 - High-High tank levels, Separator High-High

First time Audit for NWP



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> Audit Scope

- PHMSA Control Room Management inspection Form (55 pages)

> Participants

- Gas Control
- Operations support
- Pipeline Safety
- SCADA

> Audit Preparation

- Compiled records and supporting documents for PHMSA Auditors

> Auditors

- Kuang Chu (WUTC) and Brent Brown (PHMSA – Western Region)

> Auditor Feedback

- Kuang and Brent were very complimentary of our efforts
- Continue with improvements
- Continue with our record keeping to demonstrate compliance
- Very positive audit - extremely well prepared for the audit and led the inspectors through each section of the CRM Inspection Form very precisely and accurately

> Results

- No Unsatisfactory items noted



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Questions?